Sea Turtle Program Overview
Southeast Fisheries Science Center
Pascagoula Laboratory
Harvesting Systems and Engineering Branch

Summary of primary ongoing and proposed (funded) sea turtle research and monitoring activities for sea turtles, including international research and monitoring activities, if applicable.

Sea turtle/ Longline Mitigation: Research and Technology Transfer (Watson)
Conduct domestic and international technology transfer of pelagic longline sea turtle mitigation technologies.

1. Developed training, enforcement, and educational materials (domestic and foreign).
2. Distributed education and training materials to implement proposed regulations (domestic).
3. Provided training and fisher technical assistance (domestic and foreign).
4. Provided technical training for law enforcement agencies (domestic).
5. Assisted in designing experiments to evaluate sea turtle mitigation techniques (foreign).

Conduct sea turtle mitigation technology training workshops for reef fish and bottom longline fishers in the Gulf of Mexico and South Atlantic. This year, gear specialists are planning to participate in experiments in the Gulf of Mexico and Ecuador with a new hook design, which may reduce sea turtle incidental capture, for the reef fish fishery.

Conducted a cooperative research project with the commercial pelagic longline fishery in the Gulf of Mexico, South Atlantic, and North Atlantic to investigate the effect of circle hooks, bait type and baiting techniques on bycatch species in nearshore fisheries for swordfish, bigeye and yellowfin tuna. Research also included evaluation of the effectiveness of safe turtle release gear, techniques and training. Hook timers and time depth recorders were used to collect data on the spatial and temporal distribution of target and bycatch species.

TED use monitoring and enforcement training (Mitchell)
Effective TED enforcement is vital to reducing sea turtle stranding events. TED enforcement requires effective and sustained technical training of boarding officers. Technical training and assistance provided by NOAA Fisheries gear specialists for marine law enforcement agencies has been extremely effective in providing the expertise required for effective law enforcement of TEDs. Additionally, the presence of NOAA Fisheries gear specialists during enforcement boardings continues to provide information on technical and operational problems with TED designs and transfer of technological improvements to fishers. This information is used by SERO to modify technical specifications and regulations to improve TED efficiency. During FY 05, 8 TED

workshops were held for marine law enforcement including the U.S. Coast Guard, NOAA Law Enforcement and State marine enforcement agencies. Team members also staged "turn-key" gear monitoring for several State agencies by providing a NOAA small boat and gear specialist team to conduct offshore boarding during season openings.

TED technology transfer: Domestic (Mitchell)
As the profit margin for owner/operators and company fleets are at historic lows due to high fuel costs and low price imports, the maintenance and tuning of TEDs to insure efficient operation is even more important. The Harvesting Systems team continued TED outreach efforts to shrimp fishermen in the Southeastern U.S. through dockside visits in North and South Carolina, Georgia, Alabama, Mississippi and Texas. Dockside visits, and visits to net shops that construct TEDs are an effective means for gear specialists to provide hands-on training and TED troubleshooting techniques to the shrimp industry. Overall, shrimp fishers have had minimal problems with the new, larger opening TEDs and seem satisfied with their performance. Industry modifications to existing TED requirements were evaluated using juvenile captive-reared loggerheads (Galveston laboratory) and staff SCUBA divers. In collaboration with the Gulf and South Atlantic Fisheries Foundation, the team is conducting a study to evaluate optimum TED installation to insure maximum shrimp catch rates. A flounder fishing vessel was chartered to evaluate the catch efficiency of modifications to regular TED openings located within flounder trawls. Comparison towing between a standard TED opening (35"x 12", control) against a new Leatherback double-cover TED (experimental) was the basis of this evaluation.

TED technology Transfer: Foreign (Mitchell)
Pascagoula gear specialists provided technical assistance to SERO and the U.S. State Department in conducting international TED-use verification trips in support of U.S. Public Law 101-162 (Sea turtle/shrimp export rule). The following countries were visited in FY 05 to verify TED use and enforcement, comparable to that of the U.S.; Venezuela, Trinidad, Panama, Honduras, Costa Rica, Guatemala, El Salvador, Guyana, Suriname and Australia. Comprehensive TED training workshops for fishers were held in Panama, Trinidad, Mozambique and Madagascar.

TED Development for large trawl fisheries (Mid-Atlantic) (Gearhart)
As an initiative of the Atlantic Sea Turtle Strategy Team and in collaboration with the NEFSC, the Harvesting Systems team conducted initial design evaluations of TEDs for several large trawl fisheries. For the squid, mackerel and butterfish fishery, the aim of the research is to develop bycatch reduction technology (BRT) in trawl gear that will reduce the bycatch of cetaceans and sea turtles while not adversely affecting the catch of the targeted species or affecting the catch at a level that is acceptable by the industry. In FY05, a trip was made aboard a mackerel vessel to evaluate an industry designed cetacean/turtle excluder. TED evaluation trips were also conducted aboard a scallop trawler.

Scallop Dredge / Sea Turtle Interactions (Gearhart)
Technical assistance was provided to the NEFSC in evaluating the effect that a scallop dredge may have on a sea turtle if encountered on the sea floor during fishing operations. Team divers staged turtle/dredge encounters using loggerhead carcasses obtained from the SEFSC Sea Turtle Stranding network. Divers videotaped each encounter from a standard and modified dredge. Turtle carcasses were recovered for damage assessment by a SEFSC turtle biologist. As one of the study results, it appears that dredge modifications are possible which will deflect turtles over the dredge mouth, minimizing damage to the turtle. The study involved participants form the scallop dredge industry.